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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,311

06/15/2005

Andreas Johannes Gerrits

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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BRIARCLIFF MANOR, NY 10510

EXAMINER

GADDY, BENJAMIN E

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

05/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,311	Applicant(s) GERRITS ET AL.	
	Examiner Benjamin E. Gaddy	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment to the claims was received on 6/15/2005 and the amended claims have been treated on the merits as below.

Foreign Priority Application

2. Certified copies of the foreign priority application have been received on 6/15/2005 as part of this 371 application.

Information Disclosure Statement

3. The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the

requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Sinusoid selection for audio coding via phase analysis of local-band frequencies".

5. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.

(b) CROSS-REFERENCE TO RELATED APPLICATIONS.

(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97
and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A “Sequence
Listing” is required on paper if the application discloses a nucleotide or amino
acid sequence as defined in 37 CFR 1.821(a) and if the required “Sequence
Listing” is not submitted as an electronic document on compact disc).

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection

is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 6 and 9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3 and 9, respectively, of copending Application No. 10/539,311. Although the conflicting claims are not identical, they are not patentably distinct from each other because if the subject matter of one application, as currently written, were to issue as a patent, one or more of the independent or dependent claims of the

other application would be a substantial duplicate of one or more independent or dependent claims of the original application.

The overlapping scope of claim #3 of the examined application and claim #6 of the copending case require a double patenting rejection to be made.

Examined claim #3	Claim #6 of copending case
A method of encoding an audio signal by representing at least part of said audio signal by a plurality of sinusoids, the method comprising the steps of:	A method of encoding an audio signal by representing at least part of said audio signal by a plurality of sinusoids, the method comprising the steps of:
performing an analysis on a first segment of said audio signal;	performing an analysis on a first segment of said audio signal;
selecting candidate sinusoids based on said analysis;	selecting candidate sinusoids based on said analysis;
determining for at least one of the candidate sinusoids a phase consistency defined by an extent to which a phase of said candidate sinusoid at a certain moment in time can be predicted from a phase of said candidate sinusoid determined at	determining for at least one of the selected sinusoids a phase consistency defined by an extent to which a phase of said selected sinusoid at a certain moment in time can be predicted from a phase of said selected sinusoid determined at another moment in time;

another moment in time;	
and selecting said candidate sinusoid as a selected sinusoid when its phase consistency is above a predetermined threshold.	and further selecting said selected sinusoid as a further selected sinusoid when its phase consistency is above a predetermined threshold.
<u>further comprises a further selection out of the selected sinusoids which comprises the steps</u> <u>of</u> defining for at least one of the selected sinusoids a local frequency band around said selected sinusoid's frequency;	defining for at least one of the candidate sinusoids a local frequency band around said candidate sinusoid's frequency;
combining amplitudes of frequency components within said local frequency band from which at least one of the selected sinusoids within said local frequency band is excluded;	combining amplitudes of frequency components within said local frequency band from which at least one of the candidate sinusoids within said local frequency band is excluded;
and further selecting said selected sinusoid as a further selected sinusoid in dependence on the combination of amplitudes	and selecting said candidate sinusoid as a selected sinusoid in dependence on the combination of amplitudes

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Claims 9 of the current application and 9 of the copending application have similar language directed towards an audio encoder.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAulay (US 5,054,072) in view of Tsutsui (US 5,301,205).

Consider claims 1 and 8: McAulay discloses encoding an audio signal by representing at least part of said audio signal by a plurality of sinusoids (**see Abstract**), the method comprising the steps of:

performing an analysis on a first segment of said audio signal (**see Col. 5, lines 24-31, where McAulay discusses frame intervals and an analysis window**);

selecting candidate sinusoids based on said analysis (**see Col. 7, lines 19-26, where McAulay discusses a sequence of pitch pulses**);

determining for at least one of the selected sinusoids a phase consistency defined by an extent to which a phase of said selected sinusoid at a certain moment in time can be predicted from a phase of said selected sinusoid determined at another moment in time (**see Col. 2, lines 26 - 40 where McAulay discusses predicting phases across frames and Col. 5, lines 10-20, where McAulay discusses the phase calculation**);

selecting said selected sinusoid as a selected sinusoid when its phase consistency is above a predetermined threshold (**see Col. 7, lines 19-27, where McAulay discusses phase modeling and a required minimum value, therefore a threshold**).

McAulay does not specifically disclose formant analysis, however Tsutsui discloses formant analysis (**see Figure 4 and Col. 7, lines 27-35, where Tsutsui discusses spectral coefficients**).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of McAulay, and use formant analysis as taught by Tsutsui, thus enabling a high-quality audio compression technique, as discussed by Tsutsui (**see Col. 3, lines 15-22**).

Consider claim 2: McAulay and Tsutsui disclose the determination of said candidate sinusoid's phase consistency comprises the steps of:

segmenting a second segment of said audio signal into at least a first and a second part (**see Col. 8, lines 4-10, where McAulay discusses pitch periods**);

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determining the actual phases of said candidate sinusoid in at least the first and the second part **(see Col. 8, lines 8-15, where McAulay discusses evaluating the phase after a determination);**

using the actual phase in the first part to serve as the input for predicting the actual phase in the second part **(see Col. 8, lines 30-35, where McAulay discusses determining residual phases);**

and determining said candidate sinusoid's phase consistency based on a prediction error between the actual phase and the predicted phase in the second part **(see Col. 7, lines 30-40, where McAulay discusses selection based on minimizing the error).**

Consider claims 3 and 9: McAulay and Tsutsui disclose a further selection out of the selected sinusoids which comprises the steps of:

defining for at least one of the selected sinusoids a local frequency band around said selected sinusoid's frequency **(see Col. 7, lines 24-26, where Tsutsui discusses plural frequency bands based on spectral coefficients);**

combining amplitudes of frequency components within said local frequency band from which at least one of the selected sinusoids within said local frequency band is excluded **(see Col. 7, lines 12-24, where Tsutsui discusses each range of frequencies is grouped into a band, and the coefficients are quantized, therefore combined);**

and further selecting said selected sinusoid as a further selected sinusoid in dependence on the combination of amplitudes **(see Col. 7, lines 12-24, where Tsutsui discusses each range of frequencies is grouped into a band, and the coefficients are quantized, therefore combined).**

Consider claim 4: McAulay and Tsutsui disclose a bandwidth of said local frequency band around said selected sinusoid's frequency is defined in dependence on said selected sinusoid's frequency (**see, e.g. Col. 1, lines 53-65, where Tsutsui discusses the prior-art system of bandwidths that vary with frequency**).

Consider claim 5: McAulay and Tsutsui disclose said dependence on said selected sinusoid's frequency is based on a human's perception of audio (**see Col. 1, lines 53-56, where Tsutsui discusses taking the characteristics of human hearing into account**).

Consider claim 6: McAulay and Tsutsui disclose said selected sinusoid is further selected as a further selected sinusoid when its amplitude is significant with regard to said combination of amplitudes (**see Fig. 3, where Tsutsui shows calculating a magnitude and Col. 9, lines 15-25, where Tsutsui discusses a quantizing circuit calculation**),

which significance is evaluated by thresholding a difference between said selected sinusoid's amplitude and a weighted mean amplitude of frequency components within said selected sinusoid's local frequency band from which at least one of the selected sinusoids within said local frequency band is excluded (**see Col. 9, lines 16-28, where Tsutsui discusses using a mean value to calculate energy and an allocation based on magnitude**).

Consider claim 7: McAulay and Tsutsui disclose said selected sinusoid is further selected as a further selected sinusoid when its amplitude is significant with regard to said combination of amplitudes (**see Fig. 3, where Tsutsui shows calculating a magnitude and Col. 9, lines 15-25, where Tsutsui discusses a quantizing circuit calculation**),

which significance is evaluated by thresholding a ratio of: a difference between said selected sinusoid's amplitude and a weighted mean amplitude of frequency components within said selected sinusoid's local frequency band from which at least one of the selected sinusoids within said local frequency band is excluded (**see Col. 9, lines 16-28, where Tsutsui discusses using a mean value to calculate energy and an allocation based on magnitude**);

and a weighted deviation of the amplitudes of frequency components within said local frequency band from which at least one of the selected sinusoids within said local frequency band is excluded (**see Col. 9, lines 3—35, where Tsutsui discusses allocating based on the magnitude and dependent of the frequency of the band**).

Consider claim 10: McAulay and Tsutsui disclose an audio signal (**see Tsutsui figure 1**), an audio encoder for encoding said audio signal to obtain an encoded audio signal (**see Tsutsui Figure 1, e.g. part 16**),,

and a formatting unit for formatting the encoded audio signal into a format suitable for storage and/or transmission (**see e.g. Tsustui Figure 3**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin E. Gaddy whose telephone number is (571) 270-5134. The examiner can normally be reached on M-TH 9am - 4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benjamin Gaddy
/Benjamin E Gaddy/
Examiner, Art Unit 2626
4/10/08

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626